

In the Claims:

A complete listing of all of the claims in the present Application is as follows:

1. (Previously Presented) A mover combination comprising:
a mover including an outer surface, the mover including a magnet component and a conductor component, the mover defining a first passageway and a second passageway including an inlet, the first passageway at least partly encircling a portion of the second passageway, wherein the passageways are positioned within the conductor component; and
a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet.
2. (Canceled).
3. (Original) The mover combination of claim 1 wherein the second fluid is within approximately 5 degrees C of boiling at the inlet.
4. (Original) The mover combination of claim 3 wherein the second fluid is within approximately 1 degree C of boiling at the inlet.
5. (Original) The mover combination of claim 1 wherein the mover is positioned in a room that is at a room temperature, and wherein the temperature of the first fluid at the first inlet is approximately equal to the room temperature.
- 6-8. (Canceled).

9. (Previously Presented) The mover combination of claim 1 wherein the second passageway includes an outlet, wherein the second fluid that exits from the outlet is at a temperature that is approximately boiling.

10. (Original) The mover combination of claim 1 wherein the circulation system creates at least a partial vacuum in at least one of the passageways.

11. (Original) The mover combination of claim 1 wherein the circulation system creates at least a partial vacuum in the second passageway.

12. (Previously Presented) A mover combination comprising:

a mover including an outer surface, the mover defining a first passageway and a second passageway including an inlet, the first passageway at least partly encircling a portion of the second passageway; wherein the mover includes a magnet component having a pair of spaced apart magnet arrays and a conductor component that includes a conductor array positioned between the magnet arrays; and

a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet.

13. (Currently Amended) ~~[[A]]~~ The mover combination comprising:

~~a mover including an outer surface, the mover defining a first passageway and a second passageway including an inlet, the first passageway at least partly encircling a portion of the second passageway; of claim 1~~ wherein the mover is a linear motor; and

~~a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet.~~

14. (Previously Presented) A mover combination comprising:

a mover including an outer surface, the mover defining a first passageway and a second passageway including an inlet, the first passageway at least partly encircling a portion of the second passageway; wherein the mover is a voice coil motor; and

a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature, and wherein the second fluid is approximately boiling at the inlet.

15. (Original) An isolation system including the mover combination of claim 1.

16. (Original) A stage assembly including the mover combination of claim 1.

17. (Original) An exposure apparatus including the mover combination of claim 1.

18. (Previously Presented) A method for making an object comprising the steps of providing a substrate, and transferring an image on the substrate with the exposure apparatus of claim 17.

19. (Previously Presented) A method for making a semiconductor wafer comprising the steps of providing a substrate, and transferring an image on the substrate with the exposure apparatus of claim 17.

20. (Currently Amended) A mover combination comprising:

a mover including a magnet component, and a conductor component having a coil assembly, the mover also including a first passageway and a sealed second passageway, the second passageway being filled with a second fluid that is not actively circulated; wherein the passageways are positioned within the conductor component, wherein the first passageway encircles the coil assembly and the second passageway, and wherein the second passageway encircles the coil assembly; and

a fluid source that circulates a first fluid through the first passageway.

21. (Previously Presented) The mover combination of claim 20 wherein the second fluid is a gas.

22. (Original) The mover combination of claim 21 further comprising a heat transferer that is in direct thermal communication with the conductor component and transfers heat from the conductor component.

23. (Original) The mover combination of claim 22 wherein the mover includes a third passageway and the heat transferer transfers heat from the conductor component to the third passageway.

24. (Original) The mover combination of claim 23 wherein the fluid source circulates a third fluid through the third passageway.

25. (Original) The mover combination of claim 23 wherein the heat transferer includes a heat pipe.

26. (Previously Presented) The mover combination of claim 23 wherein the heat transferer includes a thermally conductive structure.

27. (Original) The mover combination of claim 20 wherein the mover is positioned in a room that is at a room temperature, and wherein a temperature of the first fluid in the first passageway is approximately equal to the room temperature.

28. (Original) An isolation system including the mover combination of claim 20.

29. (Original) A stage assembly including the mover combination of claim 20.

30. (Original) An exposure apparatus including the mover combination of claim 20.

31. (Previously Presented) A method for making an object comprising the steps of providing a substrate, and transferring an image on the substrate with the exposure apparatus of claim 30.

32. (Previously Presented) A method for making a semiconductor wafer comprising the steps of providing a substrate, and transferring an image on the substrate with the exposure apparatus of claim 30.

33. (Canceled)

34. (Previously Presented) The method of claim 37 wherein the temperature of the second fluid at the second inlet is within at least approximately 2 degrees C of the boiling temperature of the second fluid at an absolute pressure within the second passageway.

35. (Previously Presented) The method of claim 37 wherein the temperature of the second fluid at the second inlet is within at least approximately 1 degrees C of the boiling temperature of the second fluid at an absolute pressure within the second passageway.

36. (Previously Presented) The method of claim 35 wherein the second passageway includes a second outlet and wherein the temperature of the second fluid at the second outlet is within at least approximately 1 degree C of the boiling temperature of the second fluid at an absolute pressure within the second passageway.

37. (Previously Presented) A method for making a mover combination, the method comprising the steps of: (i) providing a mover having an outer surface, a magnet component and a conductor component, the mover including a first passageway having a first inlet and a second passageway having a second inlet, the first passageway at least partly encircling a portion of the second passageway; wherein the passageways are positioned within the conductor component; and (ii) controlling the temperature of the outer surface of the mover so that it is approximately equal to an ambient temperature by directing a first fluid from a fluid source into the first inlet; and directing a second fluid from the fluid source into the second inlet, wherein a temperature of the second fluid at the second inlet is approximately equal to the boiling temperature of the second fluid at an absolute pressure within the second passageway.

38. (Original) The method of claim 37 wherein the mover is positioned in a room that is at a room temperature, and wherein the temperature of the first fluid at the first inlet is approximately equal to the room temperature.

39. (Previously Presented) A method for making an isolation system comprising the steps of providing a mover and circulating the fluids around the mover pursuant to the method of claim 37.

40. (Previously Presented) A method for making a stage assembly comprising the steps of providing a mover that moves a stage and circulating the fluids around the mover pursuant to the method of claim 37.

41. (Previously Presented) A method for making an exposure apparatus comprising the steps of providing a mover and circulating the fluids around the mover pursuant to the method of claim 37.

42. (Original) A method of making a wafer utilizing the exposure apparatus made by the method of claim 41.

43. (Currently Amended) A method for controlling the temperature of a mover, the mover including a magnet component and a conductor component having a coil assembly, the method comprising the steps of:

providing a first passageway in the conductor component of the mover, the first passageway ~~having a first inlet~~ encircling the coil assembly;

providing a sealed second passageway in the conductor component of the mover between the first passageway and the coil assembly, the second passageway being filled with a second fluid that is not actively circulated; and circulating a first fluid from a fluid source through the first passageway.

44. (Original) The method of claim 43 further comprising the step of transferring heat from a conductor array of the conductor component with a heat transferer.

45. (Previously Presented) The method of claim 44 including the step of providing a third passageway in the mover and wherein the step of transferring heat includes transferring heat from the conductor component to the third passageway with the heat transferer.

46. (Original) The method of claim 45 further comprising the step of circulating a third fluid through the third passageway.

47. (Original) The method of claim 44 wherein the heat transferer includes a heat pipe.

48. (Original) The method of claim 44 wherein the heat transferer includes a thermally conductive structure.

49. (Original) A method for making a mover combination, the method comprising the steps of: (i) providing a mover having a magnet component and a conductor component and (ii) controlling the temperature of the mover with the method of claim 43.

50. (Currently Amended) The method of claim 49 wherein the mover is positioned in a room that is at a room temperature, and wherein the temperature of the first fluid at ~~the~~ a first inlet to the first passageway is approximately equal to the room temperature.

51. (Previously Presented) A method for making an isolation system comprising the steps of providing a mover and circulating the fluids around the mover pursuant to the method of claim 43.

52. (Previously Presented) A method for making a stage assembly comprising the steps of providing a mover that moves a stage and circulating the fluids around the mover pursuant to the method of claim 43.

53. (Previously Presented) A method for making an exposure apparatus comprising the steps of providing a mover and circulating the fluids around the mover pursuant to the method of claim 43.

54. (Original) A method of making a wafer utilizing the exposure apparatus made by the method of claim 53.

55. (Original) A method of making a device utilizing the exposure apparatus made by the method of claim 53.

56. (Currently Amended) A mover combination comprising:

a mover including an outer surface, a magnet component and a conductor component that is movable relative to the magnet component, wherein the conductor component has a first passageway and a second passageway that is at least partly encircled by the first passageway; and

a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway through an inlet to the second passageway, wherein the fluid source controls the temperature and flow of the second fluid so that the second fluid is approximately boiling at the inlet.

57. (Previously Presented) The mover combination of claim 56 wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature.

58. (Previously Presented) The mover combination of claim 56 wherein the second fluid is within approximately 5 degrees C of boiling at the inlet.

59. (Previously Presented) The mover combination of claim 56 wherein the second fluid is within approximately 1 degree C of boiling at the inlet.

60. (Previously Presented) The mover combination of claim 56 wherein the second passageway includes an outlet, wherein the second fluid that exits from the outlet is at a temperature that is approximately boiling.

61. (New) A mover combination comprising:

- a mover including a magnet component, and a conductor component, the mover also including a first passageway, a sealed second passageway that is filled with a second fluid that is not actively circulated, and a third passageway, wherein the first passageway and the second passageway are positioned within the conductor component;

- a fluid source that circulates a first fluid through the first passageway; and

- a heat transferer that is in direct thermal communication with the conductor component and transfers heat from the conductor component to the third passageway.

62. (New) The mover combination of claim 61 wherein the fluid source circulates a third fluid through the third passageway.

63. (New) The mover combination of claim 61 wherein the heat transferer includes a heat pipe.

64. (New) The mover combination of claim 61 wherein the heat transferer includes a thermally conductive structure.

65. (New) A method for controlling the temperature of a mover, the mover including a magnet component and a conductor component, the method comprising the steps of:

- providing a first passageway in the conductor component of the mover, the first passageway having a first inlet;

- circulating a first fluid from a fluid source through the first passageway;

- providing a sealed second passageway in the conductor component of the mover, the second passageway being filled with a second fluid that is not actively circulated;

- providing a third passageway in the mover; and

- transferring heat from a conductor array of the conductor component to the third passageway with a heat transferer.

66. (New) The method of claim 65 further comprising the step of circulating a third fluid through the third passageway.